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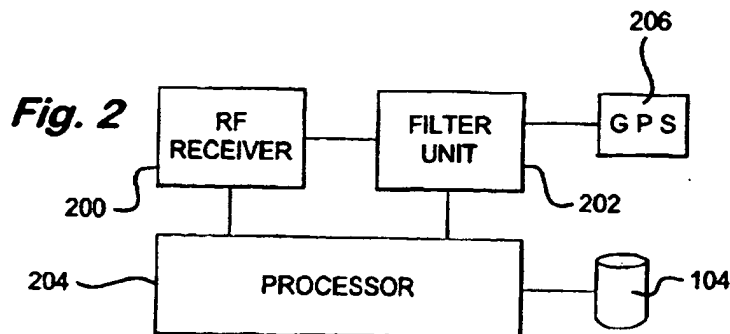
(58) Field of Search

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(54) Abstract Title

**A TV or radio receiver that enables targetted advertising and programme display**

(57) A TV, radio, DBS decoder or mobile phone enables advertising and programme broadcasts to be selectively displayed on the basis of receiver location or a user profile. The receiver determines its location by means of GPS, LORAN or by use of a cellular telephone. The receiver determines the user profile by interrogation. The receiver filters the received broadcast programmes and adverts for selective display according to the receiver location or user profile. The apparatus may be used in conjunction with a UMTS subscriber unit.



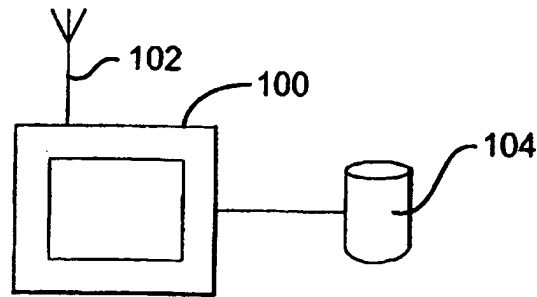
At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1995

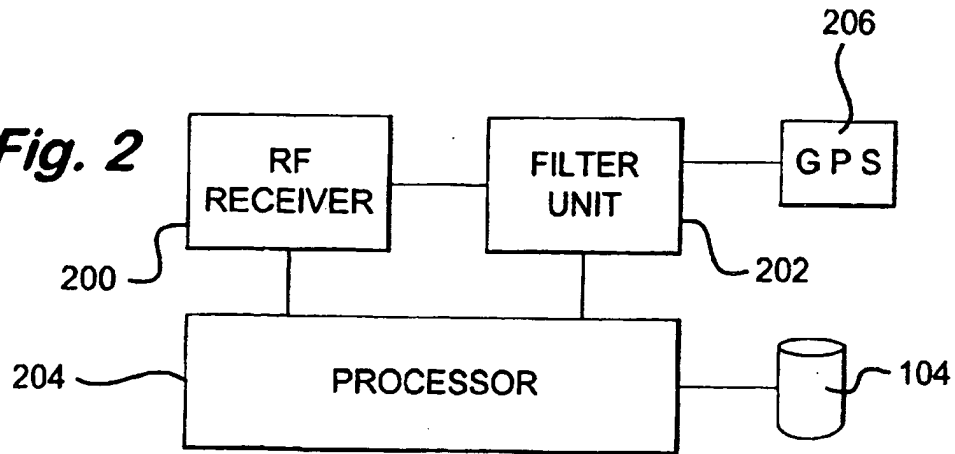
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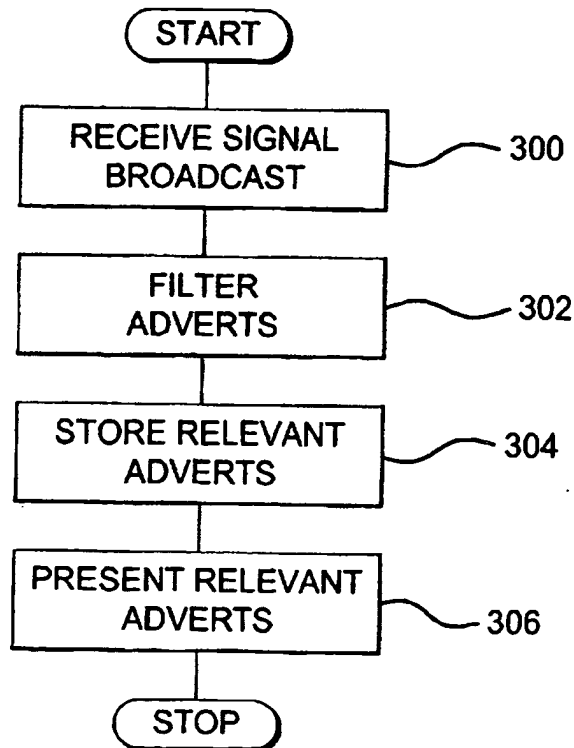
**Fig. 1**



**Fig. 2**



**Fig. 3**



## **METHOD AND APPRATUS FOR RECEIVING A MEDIA BROADCAST**

The present invention relates to a method and apparatus for receiving a media broadcast, for example a television programme containing advertisements.

It is known, when broadcasting television programmes, to separate the broadcast into parts between which advertisements are broadcast to viewers; this is sometimes known as a "commercial break". Typically, a television network is divided into regions and different advertisements are broadcast in different regions, for example, when an advertiser does not have a business interest in certain regions. Thus, viewers in different regions are exposed to different advertisements.

However, it has been recognised that it would be desirable to transmit advertisements to specific localities within a given region, for example, to a specific town. Alternatively or additionally, it has also been recognised that it is desirable to broadcast specific advertisements to viewers having specific interests or profiles.

It is therefore an object of the present invention to provide a method and apparatus to achieve the above mentioned objectives.

According to the present invention, there is provided an apparatus for receiving a media broadcast, comprising a receiver for receiving broadcast media information, the receiver being coupled to means for presenting the media information to a member of an audience of the media broadcast, and an information filter unit arranged to selectively permit the means for presenting the media information to present a predetermined portion of the media information in accordance with a predetermined criterion.

Preferably, the media information is in the form of a television or radio broadcast.

Preferably, the predetermined criterion is the location of the means for receiving the media broadcast.

Preferably, the predetermined portion of the media information is information relating to at least one advertisement. More preferably, the information relating to the at least one advertisement is broadcast on a side channel. Very preferably, at least the information relating to the at least one advertisement comprises data relating to an intended audience of the at least one advertisement.

Preferably, the apparatus further comprises a location determining unit arranged to determine the location of the means for presenting the media information, the location of the means for presenting the media information being used by the filter unit. More preferably, the location determining unit is arranged to receive Global Positioning Satellite (GPS) information. Very preferably, the location determining unit is a GPS receiver. Alternatively, the location determining unit is arranged to receive low-frequency radio navigation information. Preferably, the location determining unit is a Long Range radio Navigation (LORAN) receiver. Alternatively, the location determining unit is arranged to receive radio signal from a wireless telecommunications network. Preferably, the location determining unit is a cellular telephone.

Alternatively, the location determining unit is arranged to receive a predetermined list of locations broadcast via the receiver, a location from the list of locations being selectable by a member of the audience of the media broadcast. Alternatively, the location of the apparatus is entered by the viewer, for example, a post or zip code, and in the case of error, a default location is selected. The apparatus may be further arranged to obtain socio-economic information relating to the member of the audience of the media broadcast corresponding to the

determined location of the apparatus, the socio-economic information being used by the filter unit to determine the predetermined portion of the media information.

Alternatively or additionally, the criteria is at least one interest of the member of the audience of the media broadcast, for example, a hobby, such as stamp collecting or model building, or the criterion is a profile of the member of the audience of the media broadcast, for example, a type of holiday preferred by the audience member, an income, credit rating, marital status and/or number of dependants of the audience member. The criterion may also be used to select relevant programmes of interest to the audience member.

It should be appreciated that the above examples relating to the at least one interest or profile are merely for exemplary purposes only and others are envisaged. Also, where reference is made to a member of the audience of the media broadcast, it is intended that the above criterion may apply to more than one member of the audience of the media broadcast.

Preferably, the apparatus further comprises interrogation means for obtaining information relating to the criterion. The interrogation means may be arranged to ask the audience member a predetermined set of questions in order to determine the criterion. The interrogation means may be arranged to interrogate the audience member before, during, or after the apparatus is arranged to set itself up, for example, by scanning for channels. The interrogation means may be arranged to interrogate the audience member further at a future point in time in order to derive more information about the audience member.

The apparatus may be a television, radio or multimedia unit, or a decoder unit, for example, of the type used to decode satellite broadcasts.

Where the apparatus is used in conjunction with a telecommunications network, additional information relating to the audience member may be derived from information stored on a remote computer accessible either directly via the

telecommunications network or via the Internet. The telecommunications network may be a fixed or mobile telecommunications network,

Where the apparatus is used in conjunction with a Universal Mobile Telecommunications System (UMTS) subscriber unit, additional information relating to the audience member may be derived from a network operator or directly by a UMTS handset, for example, call frequency or duration (this could be an indication of likelihood of impulse buying).

The information relating to the profile of the audience member may be supplemented by recording information relating to audience trends, for example, types of programmes watched or listened to by the audience member.

It should be noted that although reference has been made to the member of the audience of the media broadcast, this term is intended to include viewers where the means for presenting the media information is a television, a listener where the means for presenting the media information is a radio, and other forms of consumption of broadcast or on-demand multimedia information.

According to the present invention, there is also provided a method of receiving a media broadcast, comprising the steps of: receiving broadcast media information; filtering the media broadcast according to a predetermined criterion in order to identify a predetermined portion of the media broadcast relevant to a member of an audience of the media broadcast, and presenting the filtered predetermined portion of the media broadcast.

It is thus possible to provide a method and apparatus for receiving a broadcast which is capable of presenting highly relevant and targeted advertisements or other information to a viewer in a predetermined location.

At least one embodiment of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a schematic diagram of apparatus constituting an embodiment of the invention;

Figure 2 is a schematic diagram of a portion of the apparatus of Figure 1 in more detail, and

Figure 3 is a flow diagram of a method for use with the apparatus of Figure 1.

Throughout the description, like reference numerals will be used in order to identify like parts.

A television 100 (Figure 1) is coupled to an antenna 102 and a data storage device, for example, a cache memory unit 104. Although the cache memory unit 104 has been shown as a separate device, it should be appreciated that the cache memory unit 104 can be integral with the television 100.

Referring to Figure 2, the television 100 comprises a Radio Frequency (RF) receiver 200 which is capable of being coupled to the antenna 102, the RF receiver 200 is coupled to a filter unit 202 and a processor 204. It is conceivable that the filter unit 202 and the processor 204 can be implemented as a single digital signal processor unit. The filter unit 202 is also coupled to a GPS receiver 206 and the processor 204, the processor being coupled to the cache memory unit 104. It should be appreciated that the present invention is not limited to the use of a cache memory unit, and the use of other data storage devices is envisaged. Also, the use of other location determining equipment is envisaged, for example, a low-frequency radio navigation information receiver, such as a LORAN receiver, or a cellular telephone based localisation system.

Although a television has been described above, it should be appreciated that the present invention is not limited to a television and can be applied to other media equipment, for example, a radio or a decoder unit or a cellular telephone handset, which may support voice and/or multimedia calls .

During normal operation (Figure 3), a media broadcast, for example, a television or radio broadcast is received (step 300) by the RF receiver 200 via the antenna 102. The media broadcast, can be a digital television signal or, in the case of a radio broadcast, a Digital Audio Broadcast (DAB). Simultaneously with a television programme, data corresponding to at least one advertisement is broadcast on a side-channel and received by the RF receiver 200 during a television programme so that a large number, for example, several hundred, advertisements can be broadcast. As is well known in the art, side-channels are secondary channels used for broadcasting auxiliary information, separate from the primary information being broadcast.

The side-channel can be detected when the television is powered-up by performing a scan for channels. The data corresponding to at least one advertisement contained in the media broadcast includes a header comprising location, profile and/or interest data relating to a viewer or group of viewers. The information carried by the header is filtered (step 302) by the filtering unit 202 using location information provided by the GPS receiver 206 in order to determine which advertisements are relevant for a location of the television 100.

In addition to the location information, the processor 204 can be programmed to obtain socio-economic information relating to the viewer, for example: income, credit rating or marital status information, and pass the socio-economic information to the filtering unit 202 to improve identification of advertisements most relevant to the viewer. The socio-economic information can be obtained by means of a predetermined set of questions presented to the viewer by the processor 204. Furthermore, the questions can be asked before, during or after the above apparatus is set up. Alternatively, the socio-economic information can be obtained by via other means, for example, a telecommunications network.



The information can be stored within the processor 204 or the cache memory unit 104.

The advertisements determined as relating to the location of the television, are stored (step 304) in the cache memory unit 104. Alternatively or additionally, the header can include data identifying a particular advertisement as relevant to viewers having a particular profile or interests. Also, the memory unit 104 can store information relating to programmes viewed by the viewer to improve the stored profile of the viewer, i.e. viewing interests and trends.

At an appropriate time, for example during a commercial break, the processor 204 retrieves the relevant advertisements stored by the cache memory unit 104 and initiates presentation (step 306) of the relevant advertisements to the viewer in accordance with any known method in the art.

With conventional television advertising a single series of advertisements are broadcast and displayed during the commercial break. In the example described above, many hundreds or thousands of advertisements can be broadcast as side channels during the programme broadcast period prior to the commercial break, the television 100 storing and subsequently displaying only those advertisements of high relevance to the local viewer, thereby enabling the broadcaster to provide a highly geographically localised, personally targeted and thus relevant advertising service.

Alternatively, relevant advertisements can be displayed using picture-in-picture overlays during related programming, rather than during separate commercial breaks.

Prior to normal operation, the above-described apparatus is set-up. In one example of a set up procedure, the receiver 200 receives a list of geographic locations and the processor 204 displays the list to the viewer. The viewer is prompted by the processor 204 to select a geographic location from the list of

geographic locations presented, the geographic location selected corresponding to the location of the viewer or a closest geographic location to the viewer. The set-up procedure obviates the need for the GPS receiver 206, or the like.

In another example of the set-up procedure, the processor 204 asks the viewer to provide details of the viewer's location by entering a postal (or zip) code via a remote control or keypad. In the case of an inaccurate postal code being provided, the processor 204 selects a default location.

In an alternative example, the set-up procedure occurs during a scan for channels procedure which occurs when a television is switched on for the first time. The scan for channels procedure is a well known in the art and comprises scanning the known broadcast frequencies to determine which channels can be received in that location and storing these as preset options. Alternatively, the viewer can initiate a scan for channels procedure. By combining interrogation of the viewer with the scan for channels procedure it encourages the viewer to respond to the questions and ensures that the required personal data is gathered from the viewer.

In another embodiment of the invention, the television comprises a Universal Mobile Telecommunications System (UMTS) subscriber unit/module. This allows the viewer to receive programmes while away from home. It also enables additional information relating to the viewer to be obtained directly from a UMTS network operator.

It is not intended that the present invention be limited to the above example and other modifications and variations are envisaged within the scope of the claims.

**CLAIMS**

1. An apparatus for receiving a media broadcast, comprising a receiver for receiving broadcast media information, the receiver being coupled to means for presenting the media information to a member of an audience of the media broadcast, and an information filter unit arranged to selectively permit the means for presenting the media information to present a predetermined portion of the media information in accordance with a predetermined criterion.
2. An apparatus as claimed in Claim 1, wherein the media information is in the form of a television or radio broadcast.
3. An apparatus as claimed in Claim 1, wherein the predetermined criterion is the location of the means for presenting the media broadcast.
4. An apparatus as claimed in Claim 1, wherein the predetermined portion of the media information is information relating to at least one advertisement.
5. An apparatus as claimed in Claim 4, wherein the information relating to the at least one advertisement is broadcast on a side channel.
6. An apparatus as claimed in Claim 4, wherein at least the information relating to the at least one advertisement comprises data relating to an intended audience of the at least one advertisement.
7. An apparatus as claimed in Claim 1, further comprises a location determining unit arranged to determine the location of the means for presenting

the media information, the location of the means for presenting the media information being used by the filter unit.

8. An apparatus as claimed in Claim 7, wherein the location determining unit is arranged to receive Global Positioning Satellite (GPS) information.
9. An apparatus as claimed in Claim 7, wherein the location determining unit is a GPS receiver.
10. An apparatus as claimed in Claim 7, wherein the location determining unit is arranged to receive low-frequency radio navigation information.
11. An apparatus as claimed in Claim 10, wherein the location determining unit is a Long Range radio Navigation (LORAN) receiver.
12. An apparatus as claimed in Claim 7, wherein the location determining unit is arranged to receive radio signals from a wireless telecommunications system.
13. An apparatus as claimed in Claim 12, wherein the location determining unit is a cellular telephone.
14. An apparatus as claimed in Claim 7, wherein the location determining unit is arranged to receive a predetermined list of locations broadcast via the receiver, a location from the list of locations being selectable by a member of the audience of the media broadcast.

15. An apparatus as claimed in Claim 3, wherein the location of the means for presenting the media broadcast is entered by the member of the audience of the media broadcast.
16. An apparatus as claimed in Claim 1, wherein the apparatus is further arranged to obtain socio-economic information relating to the member of the audience of the media broadcast corresponding to the determined location of the apparatus, the socio-economic information being used by the filter unit to determine the predetermined portion of the media information.
17. An apparatus as claimed in Claim 1, wherein the criterion is at least one interest of the member of the audience of the media broadcast.
18. An apparatus as claimed in Claim 1, wherein the criterion is a profile of the member of the audience of the media broadcast.
19. An apparatus as claimed in Claim 1, wherein the criterion is used to select relevant programmes of interest to the member of the audience of the media broadcast.
20. An apparatus as claimed in Claim 1, further comprising interrogation means for obtaining information relating to the criterion.
21. An apparatus as claimed in Claim 20, wherein the interrogation means is arranged to ask the member of the audience of the media broadcast a predetermined set of questions in order to determine the criterion.

22. An apparatus as claimed in Claim 20, wherein the apparatus has a self set-up facility and the interrogation means is arranged to interrogate the member of the audience of the media broadcast before, during, or after self set-up.
23. An apparatus as claimed in Claim 22, wherein the self set-up facility comprises a scan for channels.
24. An apparatus as claimed in Claim 20, wherein the interrogation means is arranged to interrogate the member of the audience of the media broadcast further at a future point in time in order to derive more information about the member of the audience of the media broadcast.
25. An apparatus as claimed in Claim 1, further comprising a Universal Mobile Telecommunications System (UMTS) subscriber unit.
26. An apparatus as claimed in Claim 25, wherein additional information relating to the member of the audience of the media broadcast is derived from a network operator or directly by a UMTS handset.
27. An apparatus as claimed in Claim 1, wherein the information relating to the profile of the member of the audience of the media broadcast is supplemented by recording information relating to trends in media information presented to the member of the audience of the media broadcast.
28. A television comprising the apparatus as claimed in any one of the preceding claims.

- 29. A radio comprising the apparatus as claimed in any one of Claims 1 to 27.
- 30. A decoder unit comprising the apparatus as claimed in any one of Claims 1 to 27.
- 31. A cellular telephone comprising the apparatus as claimed in any one of Claims 1 to 27.
- 32. A method of receiving a media broadcast, comprising the steps of: receiving broadcast media information; filtering the media broadcast according to a predetermined criterion in order to identify a predetermined portion of the media broadcast relevant to a member of an audience of the media broadcast, and presenting the filtered predetermined portion of the media broadcast.
- 33. An apparatus for receiving a media broadcast substantially as hereinbefore described with reference to Figures 1 and 2.
- 34. A method of receiving a media broadcast substantially as hereinbefore described with reference to Figure 3.



Application No: GB 9923779.4  
Claims searched: 1-34

Examiner: Keith Sylvan  
Date of search: 14 March 2000

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.R): H4F (FBB) H3Q (QCD)

Int CI (Ed.7): H04N (7/088)

Other: Online: EPODOC, WPI, PAJ

**Documents considered to be relevant:**

Category	Identity of document and relevant passage		Relevant to claims
X	GB2311442 A	Maling. See the abstract and page 8 lines 25-29.	1,2,3,15, 28,29,32
X	EP0424648 A2	General Instrument. See the abstract and column1 line 51 to column 2 line 15.	1,4, 6, 18,28,30, 32
X,P	WO99/45702 A1	Prevue International. See the abstract.	1,2,4,17, 18,27,28, 32
X,P	WO99/30493 A1	Cogent Technology. See the abstract.	1-5,17, 18,27,28, 30,32
X	WO97/17774 A1	Seiko Communications. See the abstract.	1,2,4,5,6, 17,18,29, 32
Y	US5798785	Discovery Communications. See column 29 lines 49-54.	20,21
X	US5774170	Hite. See abstract.	1,4,16, 17,27-32

X Document indicating lack of novelty or inventive step  
Y Document indicating lack of inventive step if combined with one or more other documents of same category.

& Member of the same patent family

A Document indicating technological background and/or state of the art  
P Document published on or after the declared priority date but before the filing date of this invention.  
E Patent document published on or after, but with priority date earlier than, the filing date of this application.





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INVESTOR IN PEOPLE

Application No: GB 9923779.4  
Claims searched: 1-34

Examiner: Keith Sylvan  
Date of search: 14 March 2000

Category	Identity of document and relevant passage	Relevant to claims
X, Y	US4390901      Keiser. See abstract and column 4 lines 14-16.	X: 1, 2, 16, 18, 19, 28, 32 Y: 20, 21

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.